

Metallic Medicines by Robert A. Bartlett

Metallic Medicines of Indian Alchemy

This article about metallic medicine from Indian alchemy has been condensed from a presentation given at the 2009 International Alchemy Convention held in Los Angeles, California and a preview of a forthcoming book on the subject.

History

The history of Indian alchemy is linked with ancient Vedic scriptures which are arguably the most ancient writings that we have. Dates for their origination are still under debate and range from 17,000BC to 3000BC. Tradition asserts they existed for quite a few generations as an oral heritage before anything was written down.

There were four Vedic texts, the Rig Veda, Yajur Veda, Samma Veda, and

Atharva Veda. The first three Vedas give details of ceremonies and rituals for honoring the gods and goddesses.

The fourth Veda, Atharvaveda, dealt more with personal attainments of health, wealth and happiness. It is filled with magic and sorcery, incantations for stones and plants to bring out their healing powers. Although popular, the Atharvaveda was considered by many to be “Dark Arts”.

The Atharvaveda is also largely responsible for the development of Ayurveda or “the Science of Life” which forms the core of Indian medicine.

According to tradition, the Vedic scriptures were of divine origin received by seers and transmitted by poetic verse to humans in the most remote past.

As legend goes, there are two main traditions regarding the transmission of this science of life and the lines of descent through generations of disciples.

Brahma, the Creator, was first to perceive Ayurveda. He later taught it to Daksha Prajapati, who in turn taught the Ashvin Twins who became known as the Divine Healers. The Ashvin Twins later taught Indra, king of the gods. From here the tradition

separates into two main lines.

In one line, Indra teaches Dhanvantari who later teaches disciples among whom was Sushruta. He wrote Sushruta Samhita which presented all the medical knowledge he received with special emphasis on surgical methods.

The second line of the tradition is that Indra taught Bharadvaja who later taught Atreya who was one of his disciples. Among Atreya's disciples was Charaka who later wrote Charaka Samhita, which presented the medical teachings with emphasis on preparations of medicines and drugs. This happened somewhere around 600 or 700 BC. The dates are unclear and scholars are at odds with the actual dates. Both of the Samhitas form the core texts of Ayurveda.

The Vedic scripts mention the use of gold and silver, copper and iron for medicinal purposes as well as certain gems, but not much detail as to how they are to be prepared and how to be administered.

Charaka and Sushruta supply a little more detail, they develop a few minerals for internal uses such as iron, also caustic materials for use in surgeries. Most of these are for external uses, but the interest and development in metallic medicines is apparent.

One important concept that we will come into later is the term Rasa. In the Vedic scripts as well as in Charaka and Sushruta Samhitas, rasa is mentioned as being the life sap or the nutritive plasma of the body; whichever body that is, be it plant, mineral or animal.

By about 300 BC, the texts of Charaka and Sushruta had become mutilated and scattered. Two important figures at that time were Nagarjuna, highly respected as the “Father” of Indian Alchemy. Also Vagbhata, who collected all the scattered fragments of the Samhitas as well as current knowledge into a work, entitled Ashtang Hridayum Samhita, which became the third core text of ayurveda.

In the writings of both Nagarjuna and Vagbhata, work with metal and mineral preparations are much more developed and gaining importance as experience with their power to heal has improved over time.

A testament to the metallurgical skills during this time, referred to as the Vedic Period of development, is the Iron Pillar at Delhi. This is an iron pillar that is a little over 20 feet tall, weighs about 6 tons, and although it has been standing out in the weather since 600 AD it shows very little signs of corroding at all, in fact it has been dubbed the “Rustless Wonder”. Some believe this was constructed using iron prepared by alchemical methods developed at the time.

By around 800 AD to 1100 AD there was a Transitional Period. Work with metallic medicines increased substantially and their effectiveness was now considered to be far above the effectiveness of common herbal drugs.

In fact medicine at the time became classified into three parts. Demonic Medicine, which dealt largely with invasive or surgical methods; Human Medicine, which consisted of the common herbal preparations easily available to all. And thirdly there was Divine Medicine, including mineral and metallic medicines which required special knowledge to correctly prepare.

From 1000 AD onward, metallic medicine became much more widespread. During the ninth Century one writer, Govinda Bagavatpada, composed a text called Rasa Hridya Tantra, wherein he specifically mentions two goals of medicine. One is medicine designed to heal people, and one is medicine designed to heal metals. These were later classified as Deha Siddhi, for perfecting people and Loha Siddhi which was medicine for perfecting metals. Metals were to be cured with different classes of drugs just as the human body would be cured. By using the proper drugs, metals could be cured of their defects and thus make superior medicines or elevate them into noble metals.

Later writers followed this same type of distinction in Deha Siddhi and Loha Siddhi so it became part of the alchemical tradition.

Around this time also, the caliphs in Arabia had many of the Indian texts translated into Arabic. So this information filtered into the Middle East and ultimately into the European alchemical traditions. Two other important writers during this time were Vrinda (900AD) and Chakrapani (1060 AD). Both wrote texts dealing with metallic elements in both Deha Siddhi and Loha Siddhi. The progress and success of metallic medicines after generations of experience becomes apparent. The texts clearly explain the apparatus to be used and give clear instructions on the processing of different metals, minerals and gems for medical or alchemical uses.

By 1100 AD to 1300 AD which is also called the Tantric Period, there were various political and religious changes going on. During this time use of mercury became very prominent. Mercury had been known since Vedic times though not used as a medicine. But at this time, Mercury became the centerpiece of Indian Alchemy. It was considered to be the root and source of all of the other metals and minerals. Mercury became known as Rasa, which we mentioned earlier as being the life sap, and now equated with the semen of the god Shiva, and thus the generative force of the universe. The science of mercury became known as Rasa Shastra and this term later designated Indian Alchemy in general. Mercury was considered to act as a catalyst to all other metal or herbal preparations and had the ability to penetrate deeply into all materials. So mercury was a key medicinal element used by itself or as part of a formulation. During this time the use of metallic medicines and their preparations start to proliferate. Part of the reason being that during the tantric period there was a move toward an individual religious experience. The tantric period taught that all people could attain “salvation while still alive” and this was possible by performing certain rites and ceremonies and the use of specially prepared medicines. A great deal of interest was poured into the types of medicines which would cure all illnesses and also prolong life so that one would be able to attain the blissful state of enlightenment.

In order to create a body that would last in perfect health and allow a higher type of awareness to manifest required medicines which worked on subtle as well as physical realities. You become enlightened while you are still alive in this body, perfectly preserved and healthy and fully conscious of who you are and what your place in the universe is. This quest for the elixir of life and the powder of projection saw its peak here around 1400AD.

There were again large political changes happening in the country following foreign invasions. A lot of people were executed, dispersed, or exiled from the country; schools and temples were destroyed. Interest in metallic medicines had a shift in focus toward a goal of creating superior agents for the relief of human suffering.

This became what was known as the Iatro Chemical Period and is considered to have run from about 1400 to 1600AD. During this period all of the previous work with metallic medicines became coalesced and pointed toward developing superior medicines to heal diseases. These medicines not only address the body but the subtle principles that precede the structure of the body.

One important text of this period was Rasa Ratna Samuccaya which was written around 1350 and became a sourcebook of alchemical knowledge to that point in time. After 1600 there were more changes within the country. The cast system became more pronounced at this time and the upper class considered physical labor to be below them and would contaminate them. With regard to alchemical works, a lot of the intellectual input was not there any more and tasks were relegated to artisans to prepare various materials from a recipe. Alchemy slowly began to stagnate and then by the 1800s, India became part of the English empire. Under English domination modern medicine and science were introduced to India; the old ways were neglected and practiced only in remote villages.

Today alchemy is making a comeback in India as it is in the West. Worldwide there is a growing interest in metallic preparations available through ayurvedic medicine. However, many countries have restricted access to them and imports are not available in some countries due mainly to concerns over heavy metal presence in the metallic medicines. The controversy around the metallic medicines presents an opportunity to look into these materials and the procedures behind making them. Hopefully this will provide some insight into the difficulties of resolving that controversy.

Classification of substances

In practical works of rasa shastra materials are classified into 5 main groups, each containing subgroups as shown in table 1

The most important minerals used in the preparations are shown in table 2

And the metals employed by Indian alchemists are shown in table 3

Each of the materials were considered to have certain imperfections that needed to be removed and these were called doshas.

There were three main types of dosha associated with minerals and metals, the first were called Naisargic doshas and these were defects of nature associated with the specific material.

The second type of dosha was called Yougic dosha and these were defects added for commercial purposes such as adding lead or mercury to a gold or silver alloy in order to increase weight and make it appear to be more valuable. The third type is Kanchuka dosha imparted by the mountain, earth, and water where the metals were obtained. These are defects derived from the environment and include natural waste products from animal, vegetable and mineral activities of the area.

Each of these types of doshas associated with a mineral or metal had to be removed by various processes which we will talk about later.

Another class of materials used in rasa shastra are described as groups of drugs to be used in treating the subject mineral or metal. Table 4 lists the general classes of drug materials which were used to remove defects and assist conversion of the material into a medicine.

According to theory, desired qualities of a substance could be enhanced and undesirable qualities removed by treating it with a proper selection of drugs. The treatments were aimed at transforming the five elemental constitution of the subject.

Such treated materials would then provide medicines effective on physical and subtle levels of man or metals.

Processes

There are many processes developed in the science of rasa shastra which mirror those of Western alchemy but also many which are unique to this system. The processes can be quite laborious and yet employ elegantly simple apparatus and materials.

One of the main processes involves grinding or trituration to extremely fine particles. This often takes place with numerous herbal extracts used to counterbalance particular imperfections or doshas in the subject. Part of the guiding principles for deciding which drugs to use follow the same rules as ayurvedic medicine. A simple rule of thumb is that like increases like while opposites balance. For example, a mineral which possesses excess fire qualities would be cooled with drugs of a cooling nature. Excessive earthy qualities would be treated with volatile drugs. In addition, the use of fire would counter the earthy qualities predominant in the mineral realm. Extensive grinding would supply impact force associated with aerial qualities.

Each material would first undergo purification specific to its nature; this was known as Shodhan. Indian alchemists were adamant about performing these initial purifications because they were well acquainted with the toxic nature of raw minerals and metals. An imperfect material could cause more medical problems than they were meant to cure.

In practice there are two main processes for converting materials into medicines.

The first one mentioned already is Shodhan, and the second, Maran which is described as “killing” the metal or killing the toxic metallic nature of the material. The process of Shodhan involved a number of sub processes or routines. A few of the most common methods are shown in table 5.

The general purification of metals would include heating thin strips very hot and then quenching in various liquids in a specific order as shown in the table.

Another process for low melting point metals like zinc, lead or tin, involves melting the metal and then powdered herbs or other drugs are slowly added with stirring until an ash like solid is produced.

Another method, called Dhalana, is performed by melting the metal and pouring it into another specified liquid.

The processes of shodhan were said to affect the following types of changes;

1. The substance becomes more brittle making grinding easier, reduces its hardness and its cohesive nature.
2. Conversion into organo metallic complexes
3. Toxic substances were boiled or steamed for days in order to reduce or eliminate any toxic effect in the final medicine.
4. Balancing the doshas and gunas by treating with similars to increase desired qualities or with opposites to decrease unwanted qualities.
5. Extraneous materials are removed from the subject.

This was considered the purification of the subject matter. It is contrary to what we would normally consider the purification of a substance. Today, we would normally remove any foreign substances until we are left with a chemically purified matter. In rasa shastra, other substances are added to cause changes within the matter at the atomic and molecular levels as well as non material levels.

There are two levels of shodhan which most materials would undergo. The first is called Samanya, which is a general purification applied to a similar class of materials.

The second is called Vishesh Shodhan, which is a material specific purification. Each material would receive a general purification followed by the more specific purification recommended for that individual material and there are usually a number of process options. Gold would have to undergo a different type of purification compared to copper or lead. Each had a specific process designed to remove imperfections in that specific substance. These processes were developed over centuries of trial and error. Much of the theory or the why behind the how is currently lost but there are studies going on trying to recover this valuable information.

After the shodhan of a material was complete, it was ready for the marana process, which was the killing of the toxic metallic nature and creating the actual medicine. This process was designed to bring it into a state which was more compatible with the human system.

Most metallic medicines were reduced to a fine powder state called bhasma. Bhasma means an ash, and the metals or minerals were processed by fire and grinding in such a way as to reduce them to this fine powdered state. There is another method where materials were not exposed to fire and this is called a Pisti. Some gems and certain minerals could be reduced to powder simply by grinding with specific liquids over a period of time. Pisti tend to have more of a cooling effect than the bhasmas which are prepared in the fire.

In the process of marana the subject material is usually heated in sealed containers for a specified number of times. There are several methods employed in this calcination as shown in table 6.

Metals can be calcined with mercury, which was considered the best way, or with select herbs which is next best and finally with sulfur which was considered to be inferior.

Although the use of sulfur in the calcination of metals was considered to produce inferior medicines, it could always be counted on when other processing drugs were unavailable. In fact the texts state that “there is no such elephant of a metal that cannot be killed by the lion of sulfur”. A

final group of calcining aids were known as arilohas. These are rarely used as their end products are still toxic and suitable for external uses only.

In the general maran process, a metal which has gone through the shodhan would be ground to a paste with herbal decoctions. The grinding may take several days. Grinding continued until dryness and the cycle of wetting and grinding repeated a specified number of times. This was known as bhavana or impregnation.

The final ground paste was formed into small cakes and dried in the sun. Once dried they were sealed into crucibles with cloth strips smeared with clay. This package was dried and then exposed to fire under given conditions.

The crucibles themselves were held to take part in the purification and were called mushas. The term came to mean crucible in general and were described as “that which helps to eliminate the defects or impurities”. There were many different types of crucible developed; over 20 different types are described in the texts, and each one for a different purpose.

Typical materials for making crucibles include, clay, soil, ash, jute fiber, charcoal, cow dung, calcined sea shells, iron rust and earthworm soil.

These materials would be measured out and then ground to a fine paste, formed into various shapes of crucibles and finally fired prior to use.

The crucible itself was to remove certain types of imperfection in the subject and not only aided in the reactions taking place, certain trace elements would be added from the crucible and they also would absorb unwanted matter.

In addition to the crucibles themselves, there were certain liners formed by drug pastes of herbs and minerals used to coat the inside and adjust the reaction by creating an acid or alkaline condition inside the crucible. They also adjust the heat resistance and porosity of the crucible and provide a mechanism for adding other reactants to the mix during the heating process in a sort of time release method. There is a whole science to just understanding the crucibles and liners and their part in this whole process of creating the different types of medicines

FURNACES

In Rasa Shasta the use of various furnaces called Putas provide a specified amount of heat to accomplish a specific purpose. The amount heat was controlled by size of the furnace which are generally pits of various sizes dug into the ground. For example, Mahaputa, which is the largest, is a cube about 44 inches on the side. The next size, Gajaputa is a 22 in cube.

These pits would be filled about two thirds of the way with dried cow dung cakes as fuel.

The material to be processed, which was now dried and sealed inside the crucibles, would be placed on top of this cow dung and the pit filled with more cow dung. Once ignited the cakes would burn down and cool naturally. This supplied a certain quantum of heat energy required to cause changes in the subject. Generally, temperatures up to about 700 C were reached and the time would vary from half an hour to two hours at maximum temperature before they were allowed to cool naturally.

Once fired, the clay seal was broken and the material removed. The fired material would then be processed again, so it would go through the bhavana process of grinding with specific herbal decoctions until dryness several times before again forming in to small cakes. They were dried in the sun and sealed in the crucible with strips of cloth, dried and again fired in the puta of the specified size. This process of firing and grinding would be repeated for a number of times. Some would require four or five cycles, though twenty one cycles is a number that was used often. Some materials would require in excess of one hundred firings like this. Mica for instance was considered to be ambrosial after it was fired a thousand times. A great deal of time and energy are required to prepare these materials correctly.

The texts of rasa shastra are clear in specifying type of puta system and number of cycles. Cow dung was the main fuel; rice patty cakes and charcoal were also used for other types of material and desired temperature. All of these factors are designed to control the amount of heat energy and maximum temperature that the material was subject to.

The texts are very precise about how to prepare each material and they provide information that if the methods aren't followed you can expect to have any number of bad effects, so they were well aware of the problems of inappropriate processing of materials. Shortcuts were not an option. Materials had to go through specific procedures in order to bring out their medicinal nature and eliminate their toxic qualities.

The metals after processing this way were considered to be no longer toxic to the human body even though chemical analysis may show they contain mercury or lead or other heavy metals. They are considered to be compatible with the human body at this point and have only medicinal qualities. The toxic qualities which were due to the defects and imperfections of the metals were removed in the process and now the metal was in a state useful for medicine or alchemy.

The advantages of the metallic medicines are that they act quickly, often as soon as taken in. They are tasteless, which is a big plus compared to many herbal formulations and they require small doses generally in the range of 5 to 200mg. Toxic side effects are eliminated and the medicines have a long shelf life.

There is an increasing interest in these metallic medicines growing worldwide with scientific and medical studies taking place in many countries. The importance of correct processing according the tradition plays a major part in validating their effectiveness.

The government of India is making a great effort to insure consistency and repeatability in their preparation but there are still those who would take short cuts which hurts the process of validation and feeds the fire of controversy.

There is something strangely compelling about working with these materials and methods. The practical alchemist can easily learn to prepare their own metallic medicines and thus know the complete history of its creation. Simple technology and alot of labor, these medicines are works of Art and a labor of love with a 5000 year old history.